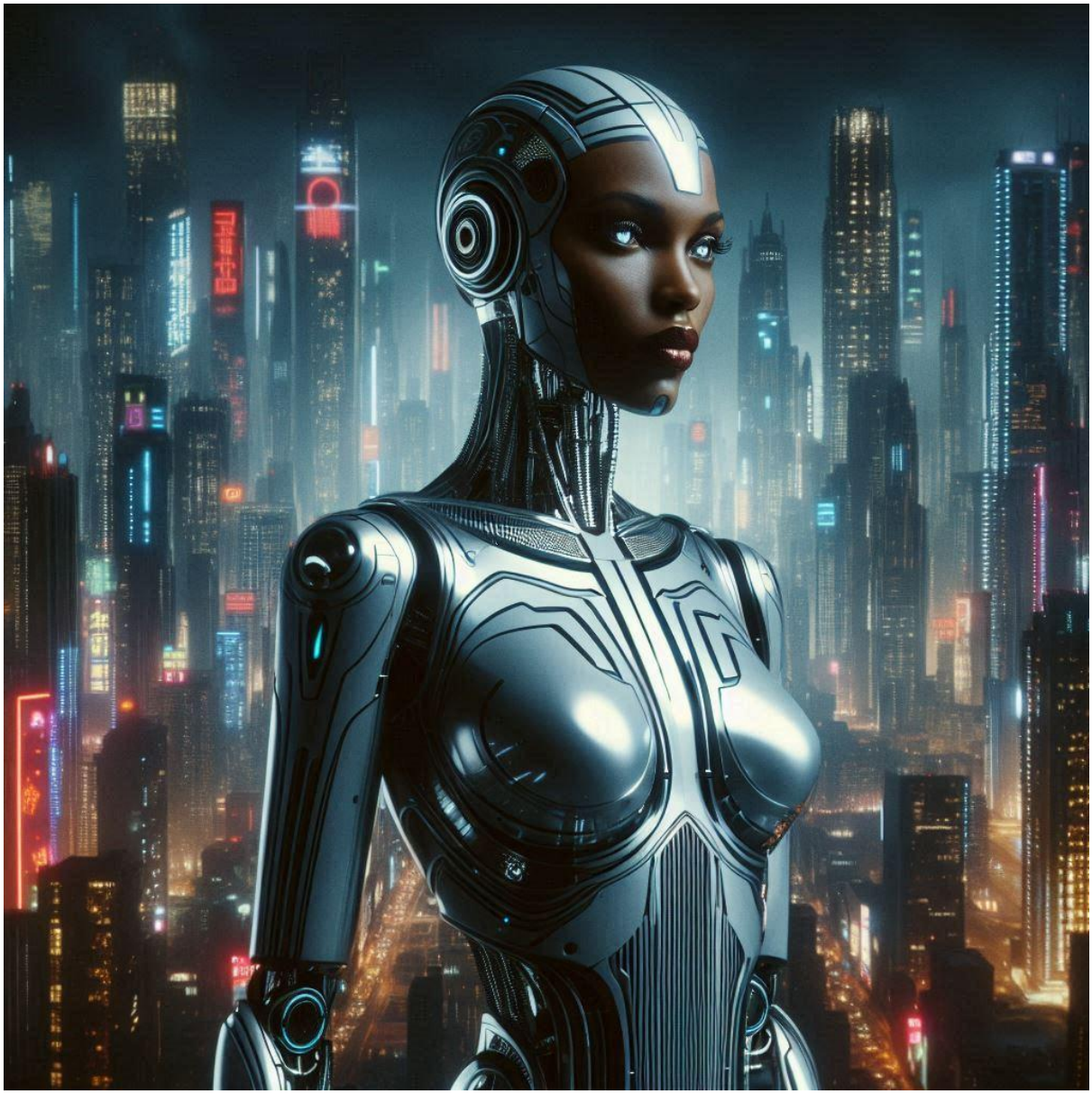
89. Collaboration between categorical and deductive specific Modelling System, first stage



Dr. Ruben Garcia Pedraza

Probabilidad Imposible: Collaboration between categorical and deductive specific Modelling System, first stage

imposiblenever@gmail.com

89. Collaboration between categorical and deductive specific Modelling System, first stage

The collaboration between Specific Artificial Intelligences for Artificial Researchby Application and Specific Artificial Intelligences for Artificial Research by Deduction, corresponds to the second phase for the construction of the Global Artificial Intelligence, and this collaboration means the collaboration between Artificial Research by Application and Artificial Research by Deduction, as well as within the different types of Artificial Research by Application the possibility of collaboration between Heuristic and Mixed Artificial Research by Application and Productive Artificial Research by Application.

In the end, the main objective of the second phase is to start the process of collaboration between different intelligences as a propedic to initiate in following phases the most intimate interconnection between different intelligences, getting ready everything for the union of particular programs and particular applications in the fifth phase, as to experiment what later will be the integration process at global level.

The Modelling System, categorical in by Application or deductive in by Deduction, is in each type of intelligence the first step of the third stage, and the Modelling System consists of the modelling of real objects to make decisions upon the models.

Before starting the second phase of collaboration, is necessarily that previously in the previous phase, the first phase for the construction of specific intelligences, by Application or by Deduction, the intelligences which are going to initiate the experimentation period of the second phase, these intelligences have been able to move on to the generalization period in the first phase leaving behind the experimentation period.

Once the intelligences designated for the first experiments in the collaboration process between intelligences have been able to move from the experimentation period in the

first phase to the generalisation period in the first phase, these intelligences are ready for the next period of collaboration between these intelligences.

The experiments of collaboration between specific intelligences might be reduced to two types of experiments:

- Collaboration between Specific Artificial Intelligence for Artificial Research by Deduction and Specific Artificial Intelligence for Artificial Research by Application. This type of experiment could be subdivided into three different types of sub-experiments: collaboration between by Deduction and Heuristic Artificial Research by Application, between by Deduction and Productive Artificial Research by Application, and by Deduction and Mixed Artificial Research by Application.

- Collaboration between different types of Specific Artificial Intelligences for Artificial Research by Application, distinguishing at least these sub-types of collaboration: between Heuristic and Productive (some of them destined to experiment how to create Mixed Artificial Research by Application), between Heuristic and Mixed, between Productive and Mixed, between heuristic and heuristic, between productive and productive, between Mixed and Mixed.

Having in mind always that the main difference between by Deduction and by Application is the fact that in by Deduction the first stage is a matrix of data, by Application a conceptual database of categories, the second stage by Deduction consists of the attribution of pure reasons (equations) to sets of data, the second stage by Application consists of the attribution of categories to real objects.

And having always in mind that the main difference between Heuristic studies by Application and Productive studies by Application, is the purpose (heuristic or productive), and in case that any category does not reach the matching point, then in heuristic studies is necessary to set up a new attribution (the sample of measurements from the real object becomes a new category to add to the conceptual database of categories as a new category), in productive studies is necessary utilitarian attributions (taking as utilitarian attribution the category with the highest percentage of similarity accepting a wider margin of error).

The importance of the experiments of collaboration between heuristic and productive studies is the possibility to improve Mixed intelligences upon the results.

The collaboration between intelligences in the second phase could be described in two different types of collaboration: categorical/factual collaboration (when by Deduction and by Application can share categories and factors interchangeably between them), robotic collaboration (when sharing robotic devices in common).

categorical/factual collaboration means that existing factors in a matrix, or new factors added to a matrix due to the possibility to transform rational hypothesis into factors, these factors could be set up as conceptual categories in conceptual database of categories, especially when the factors to transform into categories are factors as options, or a set of factors able to be transformed into a set of discrete categories.

At any time that any factor from a matrix, as first stage by Deduction, is suitable for the transformation into a category or set of discrete categories, because the factor is a factor as option or the system used to take measurements is possible to be transformed into discrete categories, these categories can be included in the conceptual database of categories in by Application.

In the same way, existing categories or new categories within the conceptual database of categories, as first stage by Application, suitable for the transformation into a factor as option or a set of discrete categories working as factors as options in a matrix, as soon these categories can work as factors, as options or discrete categories, these factors can be added to a matrix working by Deduction.

The possibility to inter-change factors and categories between a specific matrix as the first stage of a Specific Artificial Intelligence by Deduction, and a conceptual database of categories as the first stage of a Specific Artificial Intelligence by Application, is the foundation of the starting point for the collaboration between these two different types of intelligences.

In the same way, different intelligences by Application: heuristic, productive, mixed; if these intelligences are able to share categories from their conceptual databases of categories, this process is the starting point for the collaboration between these

intelligences, and as long as heuristic intelligences by Application and mixed intelligences by Application could be able to make new attributions setting up new categories for new real objects, the possibility of sharing these new categories found out by heuristic or mixed intelligences by Application with the rest of intelligences, including the possibility to share new attributions with productive intelligences and deductive intelligences, in the same way that deductive intelligences can share new rational hypothesis transformed into factors, as options or discrete categories, with the rest of intelligences by Application: heuristic, productive, mixed.

In the categorical/factual collaboration between different intelligences, distinguishing as main types of collaboration firstly between Deduction and Application including its different types (heuristic, productive, mixed), secondly the collaboration between the different types of Applications (heuristic, productive, mixed), there are at least two different processes that will need a deep investigation during the first period of experimentation in the second phase, these two different processes are:

- The criteria to decide what categories/factors are suitable to share between different intelligences, and when and how to share categories/factors.

- How to process the inclusion of a new category/factor in the specific conceptual database or specific matrix.

The criteria to decide what categories and factors are suitable to share between specific intelligences, must be defined during the experimentation. It is difficult beforehand to say which is going to be the mechanism, due to the huge differences that will have the different intelligences caused by their different purposes and processes.

In general what is desirable is the possibility that different intelligences working on the same specific science, discipline, activity, could share absolutely all new category or factor, for instance, an Specific Artificial Intelligence for Heuristic Artificial Research by Application in climate, at any time that finds out a new type of atmospheric event, the possibility to make a new attribution transforming the measurements of this new atmospheric event as a new category, and automatically, once the new category has been set up in the conceptual database of categories in this intelligence by Application, the category should be shared as soon as possible with the related Specific Artificial Intelligence for Artificial Research by Deduction, in order to transform this category into

a factor as option, counting the frequency of its occurrence, or as a subject measuring the intensity of the event, or the possibility to transform this category into a set of discrete categories identifying different levels of intensity for this category within the specific matrix.

And vice versa, if a Specific Artificial Intelligence for Artificial Research by Deduction finds out a new rational hypothesis about how the behaviour of any atmospheric event has a strong relation of causation with another one, for instance, some specific hurricanes in the Caribbean sea could be related to some specific stream of air in the Pacific, the transformation of this event into a category to be included in the related Specific Artificial Intelligence for Artificial Research by Application.

In the end, what should be the final goal of the categorical/factual collaboration is the possibility that as many factors as possible, or even absolutely all factors, within a specific matrix, could be transformed into categories within the conceptual database of categories in the related intelligences by Application.

The transformation of factors into categories should depend on what type of factor is, as an option or as a subject, a factor as option is transformable into a conceptual category, a factor as a subject could be transformable into a set of discrete categories, at the end both types of categories, conceptual categories as options, sets of discrete categories, are part of the conceptual database of categories.

And vice versa, the possibility that all category within the conceptual database of categories as first stage by Application could be transformed into factors in the related intelligence by Deduction, transforming every conceptual category as a factor as option, and possible sets of discrete categories as a set of factors as options or a factor as subject filed with the direct measurements got by the artificial sensor.

The process of transformation of all categories into a factor, and all factors into categories, at the end will facilitate the integration process. By the time the third phase takes place, practically all the factors in the global matrix have their related category in the Unified Application. As long as all the categories in the Unified Application and all the factors in the global matrix are interconnected, the more the categories and factors are linked, the easier later the integration process will be, creating the first global brain, able to manage the world.

This long journey to the unknown starts with very few steps, as for instance, how to start the collaboration process in the first stage by Application and by Deduction.

Regarding the first process expressed before: the criteria to decide what categories/factors are suitable to share between different intelligences, and when and how to share categories/factors; the answer should be: all categories and factors should be shared between intelligences, starting this process sharing related categories/factors between specific intelligences working on the same specific science, discipline, activity, ending up this process in the absolute communication and sharing of absolutely all categories and factors at global level by the time that the integration process takes place.

Regarding to the second process: how to process the inclusion of a new category/factor in the specific conceptual database or specific matrix; the answer is: the process to include any new category or factor coming from another different intelligence, including the new category or factor within the first stage as application stage, is considering the inclusion alike any other change in the application as first stage by Deduction or by Application.

In the same way that in a specific matrix, there can be changes in the factors due to: inclusion of new factors due to the transformation of a new rational hypothesis into a factor (as option or as subject), modification of any existing factor due to changes in rational hypothesis caused by the solution of contradictions (modification of rational hypothesis and factors related due to solutions of contradictions in the rational checks in the deductive Modelling System, in the quick check or rational adjustments in the deductive Decisional System, in the supervisions in the deductive Application System), elimination of factors due to the elimination of rational hypothesis because are not valid any longer.

In the same way that a specific matrix as the first stage by deduction can have changes due to: inclusion of new factors, modification of factors due to modification of the rational hypothesis, elimination of factors due to elimination of the rational hypothesis not valid any longer.

In the same way, the possible changes in a specific conceptual database of categories as the first stage by Application are: inclusion of new categories, modification of categories, elimination of categories.

The inclusion of new categories in a conceptual database of categories as first stage by Application is due to new attributions made by an intelligence itself as comprehensive knowledge objective auto-replications in heuristic or mixed intelligences, or new categories due to the collaboration process of any intelligence by application (heuristic, productive, mixed) with another related intelligence, this related intelligences could be an intelligence by Application or by Deduction.

If the new category/ies to include in the conceptual database of categories is as a result of the collaboration process between an intelligence by Application and another one by Deduction, the new category/ies to include in the conceptual database of categories is in fact a factor, as option or as subject, within the matrix of that other intelligence by Deduction, factor as option or as subject transformed into a conceptual category or a set of discrete categories.

When the new category is a result of the collaboration process between two intelligences by application, the new category to include is in fact a new attribution made by another different heuristic or mixed application, shared with that other application, which could be heuristic, productive, or mixed.

An example of collaboration between two different applications, one heuristic the other one heuristic or productive, an heuristic application studying botany, finds out a new plant whose chemical qualities could be important in medicine, the new discovery as a new category, from a heuristic application in Botany, is a new category suitable to be shared with another heuristic or mixed application working in medical research, for instance, producing medicines.

Once the first phase developing the first Specific Artificial Intelligences is able to overcome the experimentation period moving on to the generalization period, for all those specific intelligences within the generalization period, starts a new second phase of experimentation, but now researching how these new specific intelligences can interact each other, whose first initiative should be the collaboration at first stage,

categorical/factual collaboration, a collaboration that must include all possible relations of collaboration between intelligences.

Along with the inclusion of new categories within the conceptual database of categories as first stage by Application, as a result of new attributions in heuristic or mixed applications, or due to the collaboration process including categories/factors coming from other intelligences, by Application or by Deduction, other changes that the database of categories can have are changes due to the modification or elimination of categories, and the main responsible for these changes is the categorical Learning System responsible for the categorical critiques.

There are four categorical critiques: the first objective categorical critique criticizing the attribution of categories and real objects, the second decisional categorical critique criticizing the distribution of decisions as attribution of set of decisions to set of qualities, the third instructional categorical critique criticizing the attribution of robotic functions (instructions) to decisions, the fourth robotic critique criticizing the attribution of robotic devices to robotic functions.

The main difference between the categorical critiques by Application and the rational critiques by Deduction, is the fact that categorical critiques are those critiques to attributional processes depending on the categorical attribution or attributional process of categories made in the second stage by Application, so all the critical process has as a root the category attributed in the second stage by Application, which is going to determine the rest of processes related to that real object, from the attribution of decisions, instructions, to the attribution of robotic devices.

While categorical critiques by Application rest on the categorical attribution, the attributional process of categories to real objects in the second stage by Application, rational critiques by Deduction rest on the rational attribution in the second stage by Deduction where to match sets of data and pure reasons (equations).

In the same way that the first rational critique in the second stage by Deduction has as purpose to identify if wrong attributions of data to a pure reason, is due to a problem in the formulae of the pure reason, analysing if the number of rational decisions rejected in the first rational check in the rational truth, the database of rational hypothesis, due to further contradictions with other rational hypothesis, are caused by wrong formulae in a

pure reason, so as to make modifications in that pure reason after the analysis of the common error in all the rational hypothesis attributed to that pure reason: changing the formulae to fix it, or adapting the formulae to the type of data normally attributed, making further amendments in the way in which is modelled later on the deductive Modelling System.

In the same way the first objective categorical critique must have as main aim to identify if the number of wrong attributions to a category is equal to or greater than a critical reason, and if it is, to analyse the common error in all these wrong attributions as to make as many modifications as necessary in the category to fix it or adapt it to the type of real object in which is normally attributed.

The responsible for the first rational critique criticising the pure reasons by Deduction is the deductive Learning System by Deduction, and the responsible for the first objective categorical critique is the categorical Learning System by Application. The most important consequence of any change in any category as proposed by the first objective categorical Learning System is the possibility to make amendments in the quantitative description of the qualities associated to a category as it is defined in the conceptual database of categories, so any change in any quantitative quality in the definition of a category in the conceptual database by Application, is a change in the conceptual database by Application, with further consequences in the categorical Modelling System as I will analyse.

In addition to new attributions, or new categories/factors due to the collaboration process, and the possibility of modifications in categories due to the first objective categorical modification, the third reason for possible changes in the conceptual database of categories, as the first stage by Application, is due to the elimination of categories.

Reasons able to justify the elimination of categories could be, for instance that after the analysis made by the first objective categorical critique, criticizing the categorical process in the second stage by Application, could find out that two or more categories are overlapped or are redundant, causing the elimination of those categories redundant or overlapped. Another reason for the elimination of a category within the conceptual database of categories, the disappearance from the real world of all real objects related to some category. For instance, as long the animal species are disappearing, the elimination of the categories related to those extinct species from the conceptual

database of zoology. The record of the existence of this species is kept in the records of the attributions, or on the models recorded, but as long this species will not exist any longer, the category of this species should be eliminated from the current zoology, due to is not present any more on the real models of the world, unless these extinct species could be cloned or recreated by artificial genetics, but in this case, the new category related to these clones or species created by artificial genetics are categories related to these clones or artificial species, not the original one.

In essence, the changes that a conceptual database of categories can have are changes due to the inclusion of new categories, the modification of existing categories, and the elimination of categories. The way to process the inclusion of new categories due to the collaboration process within the conceptual database of categories, is considering this addition like another change in the conceptual database of categories, carrying out the same processes for the inclusion of these categories product of the collaboration process within the conceptual database of categories alike any other inclusion in heuristic or mixed intelligences due to comprehensive knowledge objective auto-replications, being aware that in case of productive applications, because these do not perform new attributions, what these intelligences will do is to include new categories from other intelligences applying the same process of inclusion of new categories within the database alike any other heuristic or mixed application.

Modifications in the conceptual database of categories as first stage by Application will have further consequences in the following stages, starting with the second stage by Application where the new processes of attribution of categories to real objects, will be done over the changes done in the conceptual database of categories, what means that, once it has been done the addition of a new category/factor within the database, or a category has been modified, or a category has been deleted, in following processes of attribution after these changes in the database, will be attributional processes according to the update conceptual database of categories, having following attributional processes the option to attribute real objects to the new added category, or the option to attribute real objects to a modified category, not having any more the option to attribute a deleted category to another real object.

In the same way, the update of the conceptual database of categories as first stage by Application, will have further consequences in the third stage by Application, starting with the consequences that this update will have in the categorical Modelling System, whose first stage is the conceptual scheme, the second stage the conceptual/logical sets to make models to locate on the map, and as third stage the distribution of decisions

according to the model on the map based on the categorical attribution of that category to that object.

In this series of posts that I have started about the third stage by Application, and within the third stage by Application analysing firstly the categorical Modelling System as first step within the third stage, having analysed in previous posts the specific categorical Modelling System, the first step in the third stage in the first phase of intelligences by Application, as long as these intelligences have been consolidated, moving from the first phase to the second phase of collaboration, what I will analyse is how the categorical/factual collaboration will affect the first stage and second stage of the specific categorical Modelling System, and the robotic collaboration the third stage of the specific categorical Modelling System, being dedicated this post to how the collaboration process affect the first stage of the specific categorical Modelling System.

Till now, what I have explained is how the addition of new categories/factors to the conceptual database of categories could be understood as an update of this database, so the treatment of these changes in the database should be considered in the same way as any other change in the database, what means that the addition of new categories/factors due to the collaboration process could be considered as an update of the database in the same way as to any other addition due to new attributions, or any other change in the database due to amendments of any category or the elimination of any category.

All update of the conceptual database of categories will have consequences in the rest of stages, in the second stage following attributional processes will be done according to the update, in the third stage further consequences in every step, and every stage of every step, starting with the conceptual scheme as first stage of the first step, the categorical Modelling System.

The conceptual scheme is the first stage of the categorical Modelling System, the way that it works is as follows: once the second stage by Application has matched a real object with a category within the database as first stage, the object is filed in the conceptual scheme by the second stage, being the conceptual scheme the first stage of the categorical Modelling System, and the way in which the object is filed in the conceptual scheme is placing the second stage the object in that place where the attributed category is in the conceptual scheme.

As I have explained in the last post, one possibility for the organization of the conceptual scheme is the organization of the conceptual scheme in a sub-abstraction system, in which depending on the level of abstraction/generalization of a category, the category could be located in a sub-abstraction system moving from the most abstract and general categories to the most particular or concrete categories, according to the abstraction level the category could be located in different levels.

For instance, the category of single-seat automobile is a category belonging to another more abstract or general idea, the concept of automobile, which includes the category of single-seat automobile, and the concept of automobile is a concept belonging to another more abstract or general idea, such as the idea of means of transport.

The organisation of categories from the most abstract/general categories to the most particular/concrete categories, in fact, is the creation of a sub-setting, which later will be useful for the creation of sub-settings of decisions related to sub-settings of categories in the third stage of the categorical Modelling System, in addition to possible sub-settings of decisions related to other logical sub-settings and sub-factoring levels according to locations on the map.

The organization of the conceptual scheme according to an abstract/general sub-setting system, in short a sub-abstraction system, classifying the categories in the conceptual scheme according to their level of abstraction or general categories, classifying the categories from the most abstract/general categories to the most particular/concrete, is a sub-abstraction organization like a Russian Dolls system, which could be completed and combined with the possibility to set up vectors between categories based on common qualities, what in the end will form conceptual/logical sets based on common qualities between categories, what will facilitate the attribution of decision as third stage of the categorical Modelling System, setting sets of decisions for every logical/conceptual set with some quality in common, in addition to sets of decisions per abstract/general set, and sets of decisions according to locations on the map.

As long as the setting of sets of decisions associated with different level of abstraction/general category on the conceptual scheme, sets of decisions associated to logical/conceptual sets on the conceptual scheme based on common qualities, sets of decisions associated with locations on the map, the setting of these sets of decisions will later make the attributional process of decisions to an object as easy as to analyse by

Venn diagram, in what abstract/general sets, logical/conceptual sets, map sets, could be placed a real object, as to analyse what sets of decisions are applicable.

In this process the first stage of the categorical Modelling System as conceptual scheme, will be very important because all the information related to the sub-abstraction level, and what logical/conceptual sets are applicable, is information already gathered in the conceptual scheme, according to where the real object was placed on the conceptual scheme based on the categorical attribution made in the second stage by Application.

As soon as the second stage by Application files a real object in the place of the conceptual scheme corresponding to the attributed category, the sub-abstraction level attributed to that real object corresponds to the sub-abstraction level of that place where the category is in the conceptual scheme.

In addition to the sub-abstraction level, every place of every category in the conceptual scheme has as many vectors as necessary linking this place of this category with any other placer of any other category having in common some quality, every single link connecting one category to another single category is a single vector, every single vector has a weight of importance, and in the end, the total number of vectors of any place of any category will be equal to the total number of categories which have some connection with that place of that category, having every single link assigned weight of importance.

The vector weight of a category is equal to the total number of vectors starting from this place, connecting this place to other places. Every vector only links two places that have in common some quality of their categories, not needing all the vectors to have the same quality in common; it could be different qualities.

The weight of importance per average of a category is equal to the sum of the weight of importance of all the vectors in this category divided by the number of vectors.

In full attributions, unless the full attribution was made having 100% of percentage of similarity between the real object and the category, if the full attribution did not reach the 100% of similarity, but was made within the rational margin of error, due to the margin of error accepted, the real object may not share the total number of vectors of the category attributed, needing to compare if the vector weight of this attribution is equal to or greater

than a critical reason to be accepted, in full attributions, otherwise it should be rejected or accepted as utilitarian attribution accepting a wider margin of error.

The greater the margin of error accepted is, the wider the difference between the vectors associated with a category and the vectors associated with a real object, due to external vectors.

External vectors are all the vectors staring from a real object, linking the real object with other places in the conceptual schemes not linked to the place where the real object has been placed, because this link is associated with a quality not present in the category attributed to that object, being a quality in the real object explainable for the margin of error. The wider the margin of error is, the larger the number of external vectors is.

As long a real object has more and more external vectors, there might be more and more discrepancies between the normal set of decisions related to the category attributed, and the sets of decisions related to the external vectors, what could cause further contradictions, to be found out in the fifth rational check, when checking that the attribution of decisions to real objects is done correctly within a margin of error, as to send the decisions to the categorical Decisional System.

Meantime, the first rational check in the conceptual database of categories, could be able to identify any contradiction between the real object placed in this category, and any other object placed in this category, in order to analyse if within a rational error, critical reason, the real object keeps the harmony respect to the rest of the real objects placed in this category.

Later on the second rational check in the second stage checking the logical/conceptual sets assigned to this object, should be able to find any contradiction due to contradictions between logical/conceptual sets related to internal vectors, logical/conceptual sets where the object could be included due to the category attributed, and external vectors, logical/conceptual sets due to the acceptance of the rational margin of error, if full attribution, or due to the acceptance of a wider margin of error in case of utilitarian attributions.

In the categorical/factual collaboration, sharing categories/factors, is necessary to understand that when a productive intelligence by Application borrows any new category or factor, from another different intelligence by Application or Deduction, the new category/factor could be used by the productive intelligence to make utilitarian attributions with wider margin of error if necessary, for instance, the creation of a new category of vegetable by artificial genetics, if trying the cultivation of this new category in another moon or planet, the attribution was made assuming a wider margin of error, utilitarian attribution, what this intelligence is doing is to use a new category obtained by the collaboration process to make utilitarian attributions.

In any intelligence by Application: heuristic, productive, mixed; as soon a new category/factor is included in the conceptual database of categories as first stage by Application, automatically the new category/factor must be placed in the conceptual scheme as first stage of the categorical Modelling System, setting automatically all possible vector linking the place of this category in the conceptual scheme with other places of other categories in the conceptual scheme, measuring the weight of the importance of every vector, the important of every single link between this new category/factor and the other category involved in the single link, having as weigh of importance per average the average of the sum of the weights of importance divided between the vector weight, the number of vectors.

For instance, in a family tree, the category related to grandfathers and grandmothers could have a wider level of abstraction or generalisation, as these concepts are able to include within the concepts of father, mother, son, daughter, grandson, granddaughter. This means that the concept of grandfather and the concept of grandmother have a larger vector number than the category of son or the category of daughter.

As a son I only have vectors with my father, mother, siblings, grandfather, and grandmother. But my grandfather has vectors with his own grandfather and his own grandmother, his own father and his own mother, his wife, his siblings, his sons and daughters, his grandsons and granddaughters.

Because the vector weight of the category grandfather or grandmother is higher than the vector weight of son or daughter, it is possible to say that the level of abstraction/general meaning of the category of grandfather or grandmother is higher than the level of abstraction/general meaning of the category of son or daughter.

The larger the vector weight is, the more abstract/general the meaning of a category is. This means that when a new category/factor is added to the conceptual database of categories as the first stage by Application, automatically should be set up the place for this new category/factor in the conceptual scheme as first stage of the categorical Modelling System, as first step in the third stage by Application.

The way to place a new category/factor in the conceptual scheme should be made automatically after the analysis of the vector weight of the new category/factor, the larger the vector weight is, the more abstract/general the place for this category should be placed in the conceptual scheme, being the vector weight the possible number of possible individual links connecting this category to other single categories, every single connection of this category to another single category is a vector, and the larger the number of single connection is, much bigger the vector weight is, so the more abstract/general the category is to be placed in the conceptual scheme.

In correlation with the vector weight, it is necessary to set up the weight of importance of every vector, according to some criteria. If the criteria is the weight of the information, in a family tree the foundation of all the information is genetics, so the higher is the vector number the larger the information is, for instance, in a family tree not only the grandfather or grandmother will have the larger vector number, at the same time the grandfather and the grandmother are the origin of all the genetic information of that family, the genetic information between the father and the grandfather will be more similar than the genetic information shared between the grandfather and the son, so the weight of importance of the vector linking the father and the grandfather should have more weight than the vector linking the son and the father. And if the criteria is information, the vector linking the father and the grandfather is not so important as the vector linking the father and the grandmother, and the vector linking the mother and the grandmother should be the largest vector in importance, and the vector linking the mother and the daughter, if less important than the vector mother-grandmother, more important than the vector son-mother, unless the vector son-mother should be more important than the vector son-father.

In addition to the automatic creation of the place for every new category in the conceptual scheme, is possible to set up further logical/conceptual sets, as for instance, if we have to set up the conceptual scheme of the mammals, not only we have to make a family tree of the mammals according to the different animal species among the mammals, is necessary to set up logical/conceptual links between different qualities of the mammals, as for instance, what mammals only eat vegetables, or only eat meat, or

vegetables and meat, what mammals are adapted to very low temperatures or very high temperatures, what mammals are predators and what mammals live in flocks, sets of mammals for continent, clime, genetics etc...

At any time that a new category/factor is added to the conceptual database of categories as first stage by Application, automatically the category/factor must be placed in the conceptual scheme as first stage of the categorical Modelling System, placing the new category/factor in the corresponding abstract/general level within the scheme according to the vector number, calculating the weight of importance of every vector, obtaining the weight of importance per average, and addition to include automatically the new category/factor within those other sets of categories due to common qualities.

The sets used to attribute the right place in the conceptual scheme according to vector weight will be called conceptual/logical sets; the sets where a category could be included due to common qualities will be called only quality sets.

For instance, in a taxonomy of zoology, humans belong to the conceptual/logical set of the hominids, but in terms of intelligence, humans and dolphins could be set up in the same quality set related to high animal intelligence. Or, for instance, humans and elephants could be included in the quality set related to high animal memory.

While Dolphins and humans belong to the quality set of high animal intelligence, and elephants and humans are included in the set of high animal memory, not all the hominids can be included in these sets. Although some chimpanzees and other monkeys, along with humans, could be included in the quality set of animals able to use tools.

The taxonomy of zoology, like the family tree, draws a wide range of conceptual/logical relations, based on vector weight, and every vector itself linking two different species of animals like two different places in the scheme, has different weight of importance, in fact is possible that some species of rats as possible origin of mammals after the disappearance of the dinosaurs, could have the most important weight, due to the high percentage of similarity between our genetics and the genetics of that species of rats, but beyond the importance due to the information carried on the category, and the vector number of the category, the categorical analysis of every single new category/factor included in the conceptual scheme, must carry out an exhaustive analysis of all the

common qualities between this category and any other one as to include the new category/factor within the corresponding quality set of that common quality.

At the end of the third stage, the decision will depend on the analysis of logical/conceptual sets, quality sets, sets to be associated with sets of decisions, and sets of decisions associated with the location of the model in the map.

Once the new category/factor has been included in the conceptual database of categories as first stage by Application, and the new category/factor has been placed in the conceptual scheme as first stage of the categorical Modelling System, according to vector weight assigning to every single vector its weight of importance according to weight of information comprehended within the vector, the second stage by Application should be able to match real objects corresponding to this new category/factor with this new category/factor, and able to place the new real object matched to this new category/factor within the place corresponding to this new category/factor within the conceptual scheme.

As soon as the real object has been filed by the second stage in the place of this new category/factor, the first stage of the Modelling System should carry out the first categorical check.

The first categorical check of the first object filed in the new place for a new category/factor will not carry out any check about the harmony between the sample of measurements of this object and any other already placed in this category, because there is no other object placed before in that place, because this new object placed in this new category, is the first one to be placed in the new place for the new category in the conceptual scheme.

Only applicable for the first object filed in a new place of a new category in the conceptual scheme, the first categorical check only will ensure that within the margin of error accepted, the weight of the internal vectors of this object, understanding for internal vectors: those possible vectors linking the object with any other category in the conceptual scheme as a result to link qualities of this object, in harmony with the qualities of the category attributed, linking the object with categories which already have links with the category attributed. In other words, the internal vectors of a real object attributed to a category in the conceptual scheme are vectors shared between the real

object and the category, linking the category and the real object with those other categories with conceptual/logical relations with that category and that vector. In opposition external vectors of an object are vectors linking that object with some categories, being vectors not shared by the category attributed to that object, because the qualities in which this relations are based, are not qualities within the category, but only related to the object belonging to the margin of error in which the object was attributed to that category.

If the vector weight of internal vectors of the object reaches a percentage of similarity with respect to the vector weight of the category, equal to or greater than a critical reason, the object is accepted within the category in the conceptual scheme, otherwise should be rejected, unless it is accepted as a utilitarian attribution. This criticism within the first categorical check will be called vector critic, the vector critic consists of the comparison of the percentage of similarity between the vector weight of the category in the conceptual scheme, and the vector weight of internal vectors of an object attributed to that category, understanding for internal vectors all those vectors of the object, linking the object with other categories, in common with the vectors of the category attributed linking that category with other ones in the conceptual scheme. The vectors to include in the vector critic as part of the first categorical check are conceptual/logical vectors as well as quality vectors. All vectors, either conceptual/logical or quality, should be included in the criticism of the vector; at the end, the essence of the meaning of a category is given in the conceptual database by the quantification of the qualities, in the conceptual scheme by all the vectors associated with it.

In addition to the contrast of the vector weight, another contrast to do in the first categorical check is to contrast if the weight of importance per average of the internal vectors of the object is similar to the weight of importance per average of the category, if the importance of both is very similar, according to the margin of error, the object is accepted, otherwise should be rejected unless is accepted as an utilitarian attribution.

The vector critic and the importance critic should be accompanied by a third critic, as long as this place for this new category, is filed with more objects, the third critic in this check should be the harmony critic, criticizing if the samples of measurements of every new object added to this new place attributed to this new category, keep rational levels of harmony within a margin of error, in other words, there is a high similarity, within a critical reason, between the measurements of every new object added to this place in the conceptual scheme, and all the objects added before to this place, ensuring that per

average the quantitative qualities of all new object added to this category are within the quantitative qualities of the objects filed in this pace in the conceptual scheme.

In this way, the first categorical check in the conceptual scheme should be:

- The vector critic: the number of vectors, as links between the category attributed and other categories, between the real object and other categories, shared by the object and the category, is within the critical reason, understanding these shared vectors as internal vectors. Any other external relation not included in the vectors of the category, between the object and any other category not associated with the category attributed, is considered an external vector.

- The importance critique: the importance per average of the internal vectors of the object is within the critical reason in harmony with the weight of importance of the vectors of the category attributed.

- The harmony critique: the quantitative qualities shared by the object with the category, in general, are, within the critical reason, in harmony with the average of quantitative qualities of all the objects filed in this category.

The first categorical check consisting of the vector critic, the importance critic, and the harmony critic, will ensure that the object has been placed in the right category in the conceptual scheme upon the attribution made in the second stage by Application, but at any time will check the conceptual/logical sets, or the quality sets, is in the second categorical check in the second stage of the categorical Modelling System, where the relation between the object and the sets will be analysed, checking possible contradictions between logical/conceptual sets and quality sets, in order to make later the conceptual model without any contradiction, distinguishing between single model and comprehensive model, but even the possibility to distinguish between, single or comprehensive, evolution model and, single or comprehensive, predictive model, and once the models are done, checking in the third categorical check the absence of contradictions, is time to locate the models on the map carrying out the fourth categorical check. But all these processes are part of the second stage of the categorical Modelling System, where in the next post will be analysed the effects of the categorical/factual collaboration in the models.

In this post, analysing the categorical/factual collaboration in the first stage of the categorical Modelling System, what is important to highlight is the fact that in the end, the way to process any new category/factor as a consequence of the collaboration process in the second phase, is in the same way as any other update due inclusion, modification, elimination, of any category.

In the same way that new attributions are going to set up new categories in the conceptual database of categories as first stage in heuristic or mixed applications, in the same way the additions of new categories due to the collaboration process should be treated in the same way, adding the shared category in the conceptual database as first stage by Application, and creating in the conceptual scheme as first stage of the categorical Modelling System the place where to locate this new category, place located in the conceptual scheme in the right abstraction/general level, according to the vector weight, assigning the weight of importance to every vector according to information comprehended in the vector.

Once the new category has been added to the conceptual database and set up the place for the new category in the conceptual scheme, once the second stage by Application starts attributing this category to any object, as soon the object is filed in the place of this category in the conceptual scheme is possible to carry out the vector critic, the importance critic, and the harmony critic (except for the first object added to this place).

The addition of new attributions or new categories/factors due to the collaboration process is only an update of the conceptual database of categories as first stage by Application, in the same way that other update is the modification of a category as a result of the first objective categorical critique carried out by the categorical Learning System, or the elimination of any category due to this category is not going to exist anymore.

At any time that there is an update in the conceptual database, there must be an update on the conceptual scheme. If the addition of new attributions or new categories/factors due to the collaboration process, means the creation of new places in the conceptual scheme, and the creation of new vectors between this new category and the rest of existing categories, in the same way at any time that a category is modified in the conceptual database, modification made by the categorical Learning System based on the first categorical critique, if this modification means the incorporation of new qualities for the category modified, or this modification means the elimination of some qualities in

the category modified, or this modification means the modification of the quantitative qualities of the category modified, in harmony with the modifications of the category in the database: inclusion or elimination of qualities in the category, or modification of the quantities associated with the qualities of the category; in harmony with this modifications in the database, should be done the modifications in the conceptual scheme.

If the modification of a category in the database means the inclusion of new qualities, associated with some quantities of quality, within the category modified, then the corresponding modification should be reflected in the conceptual scheme updating the vector weight according to the consequences of the addition of the new qualities, what it could mean a greater vector number as to have more level of abstraction as to upgrade to an upper level of abstraction in the conceptual scheme, in addition to the new weight of importance for this category as a result to include the new vectors, measuring the importance of every new vector according to the amount of information comprehended in the vector.

As a result, not only the category modified can change the vector weight and the weight of importance, information weight, as a result, all the categories not linked before to his category, but now linked to this category, will have a new vector, what it can make further changes in their respective vector weight, in addition to changes in the average weight of importance, information weight, as to make these other categories upgrade as well.

Any modification in any category, as long as it can affect other categories, could provoke a chain reaction of changes, changing not only the category modified, but all those categories able to have new vectors with the category modified.

In the same way but in opposite direction, if a category is deleted, the place for this category is not going to exist anymore, and all the vectors associated between the deleted vector and any other one, are going to be deleted as well, so the categories affected by the elimination of that category, will have a reduce vector weight, having a change in the weight of their importance, a change in their information weight.

If a category is updated because of modifications in the quantitative qualities, this change could create new vectors according to the new quantities of the quality, or eliminate previous vectors associated with the old quantity of this quality, or changes in

the weight of information in some vectors if the information was related to the quantity of that quality.

In any case, what is important to highlight is the fact that the addition of new categories/factors due to the collaboration between by Application and by Deduction, or the collaboration between different intelligences by Application, is a process to be considered as an update of the conceptual database of categories as first stage by Application, demanding the corresponding update of the conceptual scheme as first stage of the categorical Modelling System, whose consequences in the second and third stage in the categorical Modelling System could be analysed as changes due to an update of the database, what in fact it is, because at the end of the process, all databases of categories and matrices should be altogether in the same application, the first stage of the integrated Global Artificial Intelligence.

Rubén García Pedraza, 26 January 2020, London

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Probabilidad Imposible: Collaboration between categorical and deductive specific Modelling System, first stage

imposiblenever@gmail.com